

1 **WHAT IS CLAIMED IS:**

1 1. A method of manufacturing a thin film transistor array panel, the method
2 comprising:
3 forming a gate conductor on an insulating substrate;
4 forming a gate insulating layer;
5 forming a semiconductor member;
6 forming a data conductor; and
7 forming a pixel electrode connected to the drain electrode,
8 wherein the gate conductor, the data conductor, and the pixel electrode are formed using
9 a single etchant.

1 2. The method of claim 1, wherein the etchant comprises about 50-60% H_3PO_4 ,
2 about 6-10% HNO_3 , about 15-25% CH_3COOH , about 2-5% stabilizer, and deionized water.

1 3. The method of claim 2, wherein the stabilizer comprises oxy-hydride inorganic
2 acid represented by $\text{M}(\text{OH})_x\text{L}_y$, where M includes at least one of Zn, Sn, Cr, Al, Ba, Fe, Ti, Si
3 and B, L includes at least one of H_2O , NH_3 , CN and NH_2R (where R is alkyl group), X is 2 or 3,
4 and Y is 0, 1, 2 or 3.

1 4. The method of claim 3, wherein the gate conductor comprises a lower film of Al
2 or Al alloy and an upper film of Mo or Mo alloy.

1 5. The method of claim 4, wherein the lower film and the upper film comprises Al-
2 Nd and MoW, respectively.

- 1 6. The method of claim 4, wherein the data conductor comprises Mo or Mo alloy.
- 1 7. The method of claim 6, wherein the pixel electrode comprises IZO.
- 1 8. The method of claim 7, wherein the lower layer of the gate conductor, the upper
2 layer of the gate conductor, the data conductor, and the pixel electrode have thickness of about
3 1,500-3,000 Å, about 300-600 Å, about 1,500-3,000 Å, and about 800-1,000 Å, respectively.
- 1 9. The method of claim 1, wherein the etchant comprises about 65-75% H₃PO₄,
2 about 0.5-4% HNO₃, about 9-13% CH₃COOH, about 2-5% stabilizer, and deionized water.
- 1 10. The method of claim 9, wherein the stabilizer comprises oxy-hydride inorganic
2 acid represented by M(OH)_xL_y, where M includes at least one of Zn, Sn, Cr, Al, Ba, Fe, Ti, Si
3 and B, L includes at least one of H₂O, NH₃, CN and NH₂R (where R is alkyl group), X is 2 or 3,
4 and Y is 0, 1, 2 or 3.
- 1 11. The method of claim 10, wherein the gate conductor comprises a lower film of Al
2 or Al alloy and an upper film of Mo.
- 1 12. The method of claim 11, wherein the lower film comprises Al-Nd.
- 1 13. The method of claim 11, wherein the data conductor comprises a bottom layer of
2 Mo, an intermediate layer of Al or Al alloy, and a top layer of Mo.
- 1 14. The method of claim 13, wherein the pixel electrode comprises IZO.

1 15. A method of manufacturing a thin film transistor array panel, the method
2 comprising:
3 forming a gate conductor on an insulating substrate;
4 forming a gate insulating layer;
5 forming a semiconductor member;
6 forming a data conductor; and
7 forming a pixel electrode connected to the drain electrode,
8 wherein at least one of the gate conductor, the data conductor, and the pixel electrode are
9 formed by using an etchant including a phosphoric acid of about 50-60%, a nitric acid of about
10 6-10%, an acetic acid of about 15-25%, a stabilizer of about 2-5% stabilizer, and deionized
11 water, or an etchant including a phosphoric acid of about 65-75%, a nitric acid of about 0.5-4%,
12 an acetic acid of about 9-13%, a stabilizer of about 2-5% stabilizer, and deionized water,
13 wherein the stabilizer includes oxy-hydride inorganic acid represented by $M(OH)_XL_Y$,
14 where M includes at least one of Zn, Sn, Cr, Al, Ba, Fe, Ti, Si and B, L includes at least one of
15 H_2O , NH_3 , CN and NH_2R (where R is alkyl group), X is 2 or 3, and Y is 0, 1, 2 or 3.

1 16. The method of claim 15, wherein at least two of the gate conductor, the data
2 conductor, and the pixel electrode comprise at least one of Mo, Mo alloy, Al, Al alloy, and IZO.

1 17. The method of claim 15, wherein each of the gate conductor, the data conductor,
2 and the pixel electrode comprises at least one of Mo, Mo alloy, Al, Al alloy, and IZO.

1 18. An etchant for a signal wire, the etchant comprising:
2 a phosphoric acid of about 50-60%;
3 a nitric acid of about 6-10%;
4 an acetic acid of about 15-25%;
5 a stabilizer of about 2-5% stabilizer; and
6 deionized water,

7 wherein the stabilizer includes oxy-hydride inorganic acid represented by $M(OH)_XL_Y$,
8 where M includes at least one of Zn, Sn, Cr, Al, Ba, Fe, Ti, Si and B, L includes at least one of
9 H_2O , NH_3 , CN and NH_2R (where R is alkyl group), X is 2 or 3, and Y is 0, 1, 2 or 3.

1 19. An etchant of claim 18, wherein the etchant is used for patterning an Al or Al
2 alloy layer, a Mo or Mo alloy layer, and multiple layers including an Al or Al alloy layer and a
3 Mo or Mo alloy layer.

1 20. An etchant of claim 18, wherein the etchant is used for patterning an IZO layer.

1 21. An etchant for a signal wire, the etchant comprising:

2 a phosphoric acid of about 65-75%;

3 a nitric acid of about 0.5-4%;

4 an acetic acid of about 9-13%;

5 a stabilizer of about 2-5% stabilizer; and

6 deionized water,

7 wherein the stabilizer includes oxy-hydride inorganic acid represented by $M(OH)_XL_Y$,
8 where M includes at least one of Zn, Sn, Cr, Al, Ba, Fe, Ti, Si and B, L includes at least one of
9 H_2O , NH_3 , CN and NH_2R (where R is alkyl group), X is 2 or 3, and Y is 0, 1, 2 or 3.

1 22. An etchant of claim 21, wherein the etchant is used for patterning an Al or Al
2 alloy layer, a Mo or Mo alloy layer, and multiple layers including an Al or Al alloy layer and a
3 Mo or Mo alloy layer.

1 23. An etchant of claim 21, wherein the etchant is used for patterning an IZO layer.

1 24. An etchant of claim 21, wherein the etchant is used for patterning multiple layers
2 including an Al or Al alloy layer, a Mo layer, and an IZO layer.

1 25. An etchant of claim 21, wherein the etchant is used for patterning multiple layers
2 including a Mo layer, an Al or Al alloy layer, and a Mo layer deposited in sequence.